University of Groningen

Sparsity and random projections in time-frequency-based communication systems

Gay, Matthias

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2017

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):
Gay, M. (2017). *Sparsity and random projections in time-frequency-based communication systems: Theory and algorithm design for the OFDM physical layer*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.

Copyright
Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment.

Take-down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): http://www.rug.nl/research/portal. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Download date: 04-05-2023

Stellingen

behorende bij het proefschrift

Sparsity and Random Projections in Time-frequency-based Communication Systems

Theory and Algorithm Design for the OFDM Physical Layer

van

Matthias Gay

1. Sparsity-based methods are an interesting alternative and addition to the set of existing methods for specific problems.

2. Solving a sparse reconstruction problem of size $M \times N$ and sparsity $K \ll N$ can be nearly as low-cost as solving a least squares problem of size $M \times K$.

3. Adaptive clipping at the transmitter side supports the signal reconstruction at the receiver side better than non-adaptive clipping.

4. Combining Selected Mapping with clipping helps reducing the signal distortion at the transmitter side.

5. Combining sparsity-based techniques with classical ones based on the minimum mean squared error for channel estimation can outperform the sole application of either method.

6. Overall, the combination of different methods approaching the same goal tends to be a good idea. Go hybrid!

7. The extension of Generalized Learning Vector Quantization to complex numbers is a natural continuation. Although some of the resulting kernels may not be very intuitive.

8. Societies have always been shaped more by the nature of the media by which humans communicate than by the content of the communication.

   – Marshall McLuhan

9. Have no fear of perfection – you'll never reach it.

   – Salvador Dali